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ABSTRACT

This document contains three papers from a symposium on changing organizational forms. "Goal Integration in a Multi-divisional Organization" (Richard J. Torraco, Mary Finnegan), reports on a study that examined how goals are integrated into organizational activities once they have been identified, proposes a model of goal integration, and develops a construct for assessing how goals are used to guide work performance. A model for involving consultants in the process of returning a portion of an organization's success to employees is proposed and explained in "The Roles of Consultants in Gainsharing Firms: Model Development" (Eunsang Cho, Gary N. McLean). "Rethinking Boundaryless Organizations: A Framework for the Implementation and Management of Virtual Teams in the Global High-Performance Organization" (Lisa Horvath, Deborah Duarte), presents a dynamic, laterally oriented model for implementing and developing virtual teams in a global organization that was developed through studies of virtual teams in the telecommunications industry. (MN)

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9 Changing Organizational Forms

Chair: John S. Walton, London Guildhall University

Goal Integration in a Multi-divisional Organization
Richard J. Torraco, University of Nebraska
Mary Finnegan, University of Nebraska

The Roles of Consultants in Gainsharing Firms: Model Development
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Goal Integration in a Multi-divisional Organization

Richard J. Torraco
University of Nebraska

Mary Finnegan
University of Nebraska

Goal-setting is one of the most researched topics in the behavioral sciences. This study goes beyond traditional goal-setting studies to examine how goals are integrated into organizational activities once they are identified. A model of goal integration is proposed and a construct for assessing how goals are used to guide work performance is developed. In an effort to validate the model, we report the results of an initial empirical examination of the goal integration construct undertaken in a multidivisional organization.

The topic of goal-setting has been examined by researchers from several disciplines, most extensively by those in the fields of industrial psychology and management. Psychologists have studied goal-setting at the individual level using experimental designs in laboratory settings. In these studies, goals are determined by the experimenter in advance, commitment to the goals is routinely obtained, and the goals apply to simple, straightforward tasks. Although these studies have provided an extensive knowledge based on goal-setting at the individual level (Locke and Latham, 1990), they admittedly fail to capture the organizational context in which performance goals are adopted. On the other hand, goal-setting research in the field of management has been conducted almost exclusively in the field where the unit of analysis is typically the organization, rather than the individual (Richards, 1986). Because controlled conditions are difficult or impossible to achieve in organizational contexts, correlational and case study research methods have been used. Unlike laboratory studies, organizational research must accommodate multiple goals that span various timeframes where commitment to goals cannot be assumed.

Research in both disciplines focuses on goal setting—in psychology at the individual level and in management at the organizational level. Yet, neither stream of research tells us much about what happens to goals once they are identified.

Most studies of organizational goal setting do not advance our understanding of how goals are adopted and implemented at sub-strategic levels in the organization where work is actually carried out. Little emphasis has been given to assessing how closely organizations follow newly-adopted goals. Consequently, questions arise about the nature of goal integration in organizations. Some goals are embraced by the organization and are quickly adopted and used to drive organizational performance, while other goals are virtually ignored. What factors lead to the effective use of goals? Are goals more likely to be followed if performance against them is measured? This study examines factors related to how goals are integrated and used to guide performance.

The Role of Performance Measurement

Performance measurement is a common strategy for examining goal-directed behavior in organizations. Performance measures are established to assess progress toward goal attainment (Drucker, 1973; Odiorne, 1985). Commonly used measures are financial indicators, measures of customer service, employee performance, productivity, resource utilization, and long-term growth. Although they provide valuable metrics for measuring performance in many situations, there are several reasons why performance measures are limited in their ability to assess progress toward goal attainment.

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First, many organizational activities and processes are not easily measured. Some processes are too sophisticated and dynamic to be captured by performance measures. How, for example, is new employee development measured? Although critical to the long-term success of organizations, how do we assess improvement in organizational culture? How do we measure progress in identifying a new strategic direction for the organization? These processes are multi-dimensional and interact with other organizational processes as they unfold, and consequently, they defy the precise measurement of traditional performance metrics.

Second, it is difficult to have confidence in measures of long-term efforts where outcomes occur well into the future. Many organizations must work toward long-term goals in which the time between planning and outcomes spans several years, such as with multi-year construction projects and research-intensive development programs. It is difficult to prescribe definitive performance measures for long-term efforts where goals are likely to change over time. This study proposes an alternative to performance measurement that helps to show how goals are integrated into the organization and used to guide performance.

Research Questions

The purpose of the study is to advance our understanding of how goals become part of the behavioral repertoire in organizations once they have been identified. To address this, the first research question is:

- *How is goal integration assessed in organizations?*

The construct of *goal alignment* was developed and operationalized in this study as a way of assessing goal integration. Goal alignment occurs when the same goal is identified as a significant guide to work behavior at all the organizational levels to which the goal applies. Goal alignment is typically considered a desirable feature of systems for managing organizations because it facilitates the coordination of key work activities at different levels of the organization. Goal alignment focuses organization members on the strategy identified for meeting the organization's goals (Odiorne, 1985). Goal alignment can facilitate the sharing of information, knowledge, power, and rewards needed for high levels of employee involvement (Lawler, 1992). It is also an important precursor to aligning work processes and human resource policies that are mutually supportive (Pasmore, 1988). In addition, goal alignment provides a basis for linking diverse functional activities with core performance outcomes (Steele, 1995).

Organizations differ with respect to how well goals are aligned from level to level. Although several factors would seem to be related to goal integration, which factors actually lead to the effective alignment of goals? Is the alignment of newly-adopted goals a function of the work to which the goals apply? Is goal integration more a function of the goal orientation of the personnel to whom the goals apply? That is, are some employees more likely to embrace goals than others? Or are goals more likely to be followed if performance against them is measured? To examine the relationship between these factors and goal alignment, we posed a second research question:

- *What factors are associated with goal alignment?*

We have no conceptual model for how performance goals are adopted and implemented once they have been identified. We proposed a model of goal integration described in the next section. In an effort to validate the model, we report the results of an initial empirical examination of the validity of the model undertaken in a multidivisional organization. Finally, we critique the proposed model and offer an agenda for future study in this area.

A Model of Goal Integration

The model in Figure 1 provides a conceptual road map for exploring the factors associated with how goals are integrated into organizational activities to guide performance. In addition to goal alignment and performance measurement, other variables are represented in the model that are

proposed to influence goal integration in organizations (see Figure 1., *A Model of Goal Integration*). Each of these concepts is described and defined in operational terms below.

Figure 1. A Model of Goal Integration

Goal Alignment. Goal alignment occurs when the same goal is identified as a significant guide to work behavior at all the organizational levels to which the goal applies. Goal alignment is typically considered a desirable feature of systems for managing organizations because it facilitates the coordination of key work activities at different levels of the organization.

No formal metric for assessing goal alignment appears in the literature. A construct for assessing goal alignment was developed for this study. Goal alignment was determined by obtaining goal statements from those at each organizational level and comparing the goals for consistency across levels. Questions were posed to all interviewees asking them to state the most important goals at their level of the organization and at the organizational level above them. Reflecting this bi-level approach to questioning about goals, each employee was asked to state the most important goals at two levels--the level of their own job ("what key functional goals should *you* be addressing?") and, at the level of their immediate superior's job ("what key functional goals should *your superior* be addressing?"). Because each interviewee was asked not only about his/her job goals, but also about divisional goals at the next level up, direct comparison of goal statements from level to level was possible.

This type of questioning about goals was used with employees at four organizational levels: (a) the top executive of the organization, (b) divisional managers, (c) supervisors within divisions, and (d) the employees of each supervisor. Collecting data from each employee on goals at their level and the one above them allowed direct comparison of goals for consistency (i.e., alignment) from level to level. A model showing this method of determining goal alignment is presented in Figure 2., *Model for Determining Goal Alignment.*

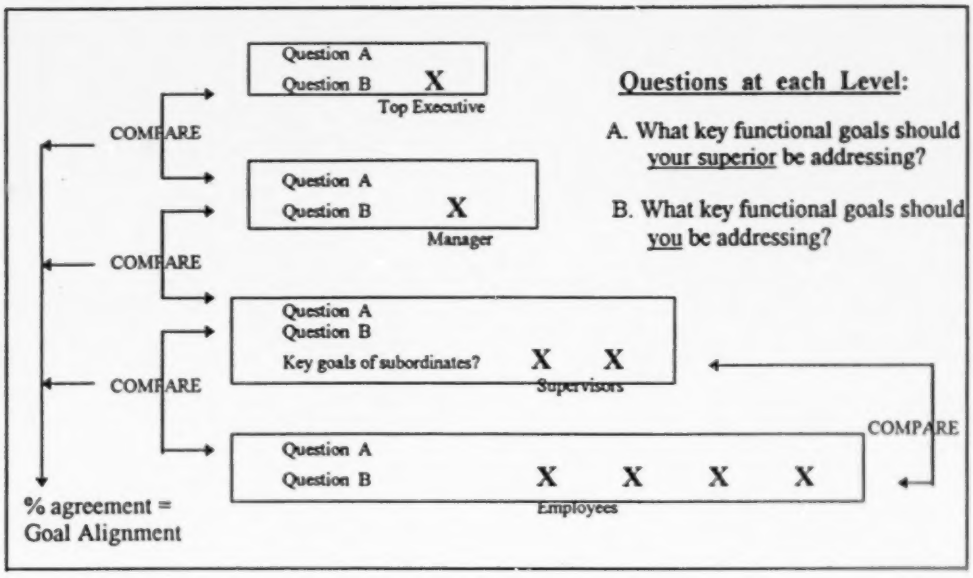


Figure 2. Model for Determining Goal Alignment

The comparison of each respondent's goal statements with those of their superior was expressed as the percentage of the total number of goals in which there was agreement from level to level. A superior and subordinate together specifying a total of six goals for which they agreed on four would yield a goal alignment of 0.6 (or 60% agreement). Goal alignment scores were obtained for each employee interviewed at the four organizational levels. Employee scores for goal alignment were aggregated within each division and then compared across each of five divisions of the organization studied to examine factors associated with goal alignment.

Performance measurement is the second major construct in the proposed model of goal integration. Because examining the relationship between goal alignment and performance measurement is central to this study, we broke down the notion of performance measurement and operationalized it as three distinct constructs: total number of performance measures used, core objective measures, and perceptions of performance measurement. This allowed us to examine more precisely the dimensions of performance measurement that might be related to goal alignment.

Total measures used. A credible model for performance measurement that provides a taxonomic structure for organizing performance measures is the "balanced scorecard" developed by Kaplan and Norton (1992). This research-based model is increasingly used to develop comprehensive performance measurement models for organizations. The balanced scorecard groups specific performance measures into four distinct categories: measures from the *customer's* perspective, *financial measures,* measures of *internal business processes,* and measures of *innovation and learning.* Using these four categories as a starting point, we developed a 33-item instrument to assess the total number of performance measures used by each of the five divisions of the organization studied. Of the performance measures listed, those circled by respondents was totaled for each survey completed.

Core objective measures. This measure indicates the degree to which performance measures used by each division focus on their core objectives. The core objectives for each division were taken directly from goal statements obtained from interviewing division managers. The core objectives for each division were expressed in 3-4 statements that identified the core purposes and outcomes to be achieved by each division of the organization. The performance measures circled on each survey were compared against the core objectives for the respondent's

division to determine the extent to which the measures were linked to core objectives. Clear statements of core objectives for each division allowed the specific performance measures circled by respondents to be readily linked with objectives. Performance measures that were directly linked to core objectives were identified and totaled for each survey. The value for "core objective measures" is the percentage obtained from the ratio of "measures linked to core objectives" over the "total number of measures used."

Perceptions of performance measurement. The third construct associated with performance measurement is the perceptions of employees and managers about the use of performance measures in their areas. The attitudes of personnel about performance measures were expected to vary with respect to employees' need for autonomy and the relative value employees placed on the guidance and structure provided by performance measures. Using a 7-point Likert scale, employees responded to four items assessing their perceptions of performance measurement. An example of a survey item for this variable is "I believe that the use of performance measures is essential to the effectiveness of the function for which I am responsible."

Job interdependence. Job interdependence is the degree to which employees rely on each other to accomplish their work. High "job interdependence" exists when one's job effectiveness greatly depends of the efforts of coworkers. Employees whose jobs are interdependent must coordinate their activities with one another, and must insure that their individual work products collectively contribute to a common goal. Thus, goal alignment is expected to be greater in areas characterized by high job interdependence among employees. An example of a survey item for this variable is "My job effectiveness is strongly dependent on close cooperation with my co-workers."

Communication frequency is the degree of work-related communication that occurs among those who work together within a particular department or work group. Work-related communication (personal contact, telephone, written, electronic) among co-workers generally improves understandings and expectations about common goals. This relationship is based on the premise that creating a culture of open and frequent communication and exchange among employees will enhance a sense of common purpose and goal alignment (Schein, 1992). Thus, areas in which co-workers communicate frequently about their work should be characterized by a greater degree of goal alignment than areas in which communication among co-workers is infrequent.

Perceptions of goal alignment. Individuals differ in the value they place in having their work activities guided by goals that are aligned from level to level within the organization. The value employees place on goal alignment spans a continuum that ranges from those who seek autonomy and independence in their work based on their internal goal orientation to those who prefer the structure and sense of common purpose that clearly aligned goals provide. We proposed that employee perceptions of goal alignment is a factor that influences the degree of goal alignment achieved in organizations. Areas in which personnel hold positive perceptions of the value of goal alignment should show much stronger patterns of goal alignment than areas that do not. An example of a survey item for this variable is "I believe that my functional job goals should be closely aligned with departmental and organizational goals."

Methodology

Research Setting. A service organization with multiple goals that vary in complexity was purposefully chosen as the research setting. This setting was the Facilities Management (FM) department of a Midwestern, land-grant university which employs 392 personnel in five separate divisions. The divisions provide project design and management for architectural and engineering services; custodial and cleaning services; environmental climate control systems; utilities services (power and steam) university-wide; and building maintenance. The availability of five divisions providing such diverse services allowed us to examine the relationships between the variables in Figure 1. in a single organization where divisions operated autonomously and pursued diverse goals. Expected differences among the five divisions on the extent of goal

alignment, performance measurement, and other variables allowed a unique opportunity to study how goals are integrated in these settings.

Data Collection. Data was collected throughout the FM organization on a division-by-division basis. Beginning with top managers and working down through supervisors and hourly employees, those at all hierarchical levels participated in interviews and surveys. As the focus of the study was on factors related to how goals were integrated throughout the organization, it was important to collect data at all organizational levels, paying particular attention to collecting data on goals and performance measures from all managers and supervisors.

Interviews. Purposeful sampling was used to insure data collection from all managers and supervisors throughout the organization. Interview data were obtained from a total of 119 employee of the FM organization for whom both interview and survey data existed. 55 interviewees were management employees and the remainder were non-management employees. Data from non-management employees was evenly distributed across the five divisions with at least 10 employees interviewed in each division. This data collection strategy allowed both complete collection of data from management (96% of management employees completed interviews and surveys) and a representative sample of data from employees in the five divisions. Interviews provided data on variables possibly related to goal integration that were eliminated from the study because they were not relevant to the organization.

Surveys. Surveys completed by the 119 management and non-management employees who had also been interviewed were used for data analysis. The survey included multiple items addressing each of the following variables: job interdependence, perceptions of goal alignment, perceptions of performance measurement, communication frequency, and total measures used. Employees completed 7-point Likert scale responses for items on *job interdependence*, *perceptions of goal alignment*, and *perceptions of performance measurement.* Open-ended items were used for *communication frequency* and *total measures used* that allowed respondents to give actual frequency values for the types of communication and the types of performance measures they use in their work. The variable, *core objective measures,* was calculated from responses to *total measures used* by comparing performance measures to core objectives as described above.

Data Analysis. Mean scores of all variable by division, analysis of variance for goal alignment by division and a correlation matrix for all variables appear in the following tables. Results are discussed in the sections following the data tables. Divisions of the FM organization were expected to differ with respect to how well goals are aligned from level to level. A strong pattern of alignment may indicate goals that provide clear, consistent guidance for performance. Similarly, lack of goal alignment might represent lack of agreement or consistency among goals from level to level. Table 1 shows the mean scores for all variables by division.

Table 1. Mean Scores for All variables by Division

Variables	Control	Maint	A & E	Custodial	Utilities
Goal Alignment	4.70	3.00	7.11	7.00	5.25
Total Measures	7.67	21.14	10.3	16.38	19.83
Core Object Meas	6.20	2.84	8.68	8.10	5.40
Perc Perf Measur	15.9	13.5	16.67	22.64	20.08
Job Interdepend	17.7	13.5	24.56	19.64	19.58
Communic Freq	60.44	61.42	26.22	52.53	53.5
Perc Goal Align	20.0	12.6	19.22	20.28	22.25

n = 119

Table 1 shows a large contrast in mean goal alignment scores between the A&E and Custodial divisions (7.11 and 7.00 respectively) and that of the Maintenance division (3.00). The analysis of variance for goal alignment by division (see Table 2) indicates significant differences in means between these divisions.

Table 2. Analysis of Variance for Goal Alignment by Division

Source	df	MS	F
Between Groups	4	31.13	5.61***
Within Groups	50	5.54	
Total	54		

***$p < .001$

The one-way ANOVA reveals significant differences between goal alignment means and division ($F = 5.61$, $p < .001$). To determine which group means differed significantly from each other, a Tukey's HSD was done. The results indicate that A&E had a mean of 7.11, which was significantly higher than the mean goal alignment for Maintenance (mean = 3.0). In addition, Custodial had a significantly higher mean (7.0) than Maintenance (3.0). There were no significant differences between goal alignment means for other divisions.

Figure 3. Means Scores for Goal Alignment and Core Objective Measures by Division

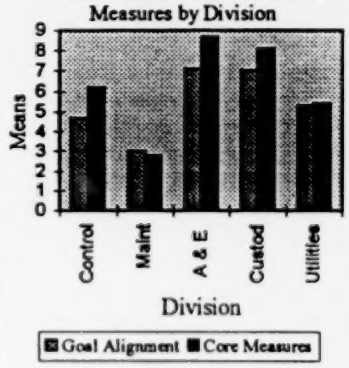


Figure 4. Mean Scores for Goal Alignment and Total Measures by Division

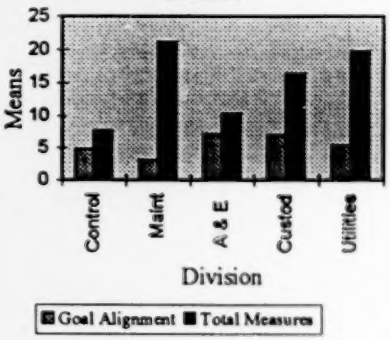
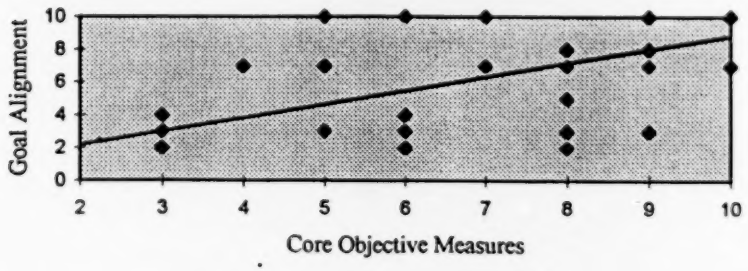


Figure 5. Scatterplot for Goal Alignment and Core Objective Measures



$r = 0.42$, $p < .05$, $n = 119$

Discussion

The Construct of Goal Alignment. Due to the limits of performance measurement, particularly with respect to abstract and long-range goals, *goal alignment* was conceived as a technique to be used as an alternative to performance measurement for assessing how goals are integrated and used to guide performance.

This construct was developed in such a way as to avoid the negative implications associated with top-down, compliance models of goal-directed behavior. These models frame goals as instruments of management control to which organizational compliance is expected. Goals are adopted by top management and cascaded down through the organization. In these models, goal alignment is determined by first identifying the goals imposed by management, and then seeking evidence of compliance with these goals at lower levels of the organization.

Contrary to this top-down approach to goal alignment, the construct presented here is an "ascending model" of goal alignment in which people identified their own goals and then looked to higher levels of the organization to identify the goals of their superiors. Respondents in the study were asked to look up into the organization and could only identify goals at higher levels if this type of knowledge was regularly shared with them. Employees of divisions with higher goal alignment had a much broader perspectives of the operations and direction of their division than employees in divisions with low goal alignment. The widespread sharing of information, knowledge, and decision making was apparent through interviews with those in divisions with high levels of goal alignment. Thus, the ascending model of goal alignment developed here is consistent with principles of employee empowerment and participatory management, where the sharing of information, knowledge, power, and rewards are prerequisites to developing high levels of employee involvement (Lawler, 1992).

Factors Associated with Goal Alignment. The construct validity of a newly developed measure, such as *goal alignment,* is enhanced if it can be shown to be related to an existing construct for the same phenomenon (Cook, Campbell and Peracchio, 1990). Performance measurement (i.e., *core objective measures)* assesses the degree to which goals guide work behavior, and as such, has construct validity for the phenomenon of goal integration. Six variables were examined to determine the extent of their relationship with goal alignment (see Figure 1., *A Model of Goal Integration).* A positive correlation was found between *goal alignment* and *core objective measures* ($r = 0.42$, $p < .05$). *Goal alignment* and *core objective measures* are both indicators of progress toward goal achievement. *Core objective measures* indicate the degree to which the performance measures used by an organization focus on their core objectives and is an index of the importance of the performance measures used by a division. Emphasis on *core objective measures* could be expected to help employees identify and focus on the key goals chosen by their division to guide work behavior. Thus, we would expect greater agreement on goals (i.e., *goal alignment)* in divisions with higher *core objective measures* ratings. The positive correlation found between *goal alignment* and *core objective measures* contributes to the construct validity of the *goal alignment* construct developed in this study.

No other statistically significant associations were found between goal alignment and the other variables examined. The lack of relationship between *goal alignment* and *total measures used* (see Figure 4) is consistent with the observation that it is not *how much* you measure, but *what* you measure that is crucial to goal achievement. Research has found that companies rarely suffer from having too few performance measures. It is more beneficial to focus on a limited number of measures that are critical to achieving desired goals (Gunn, 1993; Kaplan and Norton, 1992).

Implications for Future Research

This research developed and operationalized the construct of *goal alignment.* Goal alignment is particularly important given the limited ability of traditional performance measures to adequately assess the subtle and diverse processes organizations use to achieve their goals. The goal alignment construct represents a flexible technique that can be used to compliment performance measures in areas where change and sophisticated processes cannot be precisely measured. Our

examination of the goal alignment construct in the FM organization found that divisions differed in their degree of goal alignment and that goal alignment was positively related to *core objective measures* across the FM organization. This relationship between goal alignment and core objective measures may suggest that employees at different organizational levels are more likely to agree on key functional goals if they are clearly associated with a limited number of well-focused performance measures. Thus, emphasis on core measures of performance appears to be an important determinant for achieving goal alignment in organizations. Yet, further research is needed to examine the following dimensions of the goal alignment construct.

Factors within Divisions related to Goal Alignment were not Explored. While ratings of goal alignment were significantly higher for the A&E and Custodial divisions than they were for the Maintenance division, the reasons for these differences *within each division* are unclear. Limitations in sample size prevented us from exploring the relationships between the variables in Figure 1 and goal alignment within each division. Future research on goal alignment should move beyond a single organization to multiple organizations that allow larger sample sizes so that factors related to goal alignment can be investigated within organizational units.

Goal Alignment and Employee Participation. Because the *goal alignment* construct required respondents to look up into the organization, they could only identify goals at higher levels if this type of knowledge was regularly shared with them. Anecdotal information obtained from interviews indicated that goal alignment was related to the degree to which knowledge, information, and decision making was shared among employees within divisions (i.e., the degree of employee participation). Employees of divisions with higher goal alignment held broader perspectives of the operations and direction of their division than employees in divisions with lower goal alignment. However, no conclusions about the relationship between goal alignment and employee participation can be made based on this study because data on the degree of employee participation in the FM divisions was not systematically collected. Future research should explicitly examine the relationship between employee participation and goal alignment. How does participation facilitate goal alignment? While employee involvement appears to enhance goal alignment at multiple levels of the organization, the specific mechanisms of this dynamic need further study.

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The Roles of Consultants in Gainsharing Firms: Model Development

Eunsang Cho
University of Minnesota

Gary N. McLean
University of Minnesota

Gainsharing, in its many formats, is designed to return a portion of an organization's success to employees. In spite of extensive research, the role of the organization development consultant in gainsharing has not been explored. In this paper, a model for such involvement is proposed in anticipation of further research to explore the roles actually performed.

Changes in the business environment in the 1980s led to adoption of some form of gainsharing plan by a number of firms in the U.S. First, global competition placed U.S. business and industry under enormous pressures. Second, business strategies, management methods, including human resource practices, and modes of operation, were transformed due to deregulation in key industries. Third, technological advances significantly affected U.S. services and manufacturing industries. Fourth, Japanese management style, such as teamwork and the Kanban system, was perceived as a key to Japanese firms' international preeminence by U.S. business and industry leaders (Perry & Kegley, 1990).

In addition to these environmental changes, gainsharing was adopted widely because it was reported to improve cooperation (Lesieur, 1958), lateral communication (DeBettignies, 1987; Masternak & Ross, 1992; Ross & Hatcher, 1993), labor and management relations (Daigenault, 1952; Doherty, Nord & McAdams, 1989; Dowd, 1955; Nightingale, 1982), quality (Doherty, Nord & McAdams, 1989; Masternak & Ross, 1992; Ross & Hatcher, 1993), cost (Masternak & Ross, 1992), productivity (Doherty, Nord & McAdams, 1989) and profits (Jehring, 1967; Moore, 1976; Schulhof, 1979; Yarbrough, 1987).

A number of research studies have reported on gainsharing firms in North America. Imberman (1992) reported the estimation by the American Management Association that at least 2,000 firms were using some variety of gainsharing plan. Freud and Epstein's (1984) research, originally designed to discover the extent of use of innovative human resource management systems, found that 15% of approximately 700 firms with 500 or more employees had some form of gainsharing. According to Ost (1990), 30 of 102 U.S. firms (29%) had some form of gainsharing plan. Nickel (1990) found that 33% of 212 firms had a gainsharing plan. Lawler and Cohen (1992) reported that 39% of Fortune 100 firms relied on some form of gainsharing program. Long (1989) conducted a study of 5,000 Canadian firms. Almost ten percent (9.7%) had adopted some form of gainsharing. The past six years had seen the adoption of 70% of the gainsharing plans. A survey by Alexander Consulting Group (1992) showed that, other than in health care, gainsharing was mentioned by HR management as the most important HR topic in the 1990s, ahead of employee diversity, corporate culture, work redesign, and other contemporary issues.

Gainsharing is generally composed of three components: a financial formula that serves as a basis for bonus payments, a formal employee involvement program, and teamwork. The financial formula and employee involvement are often emphasized and specified in gainsharing. Teamwork, however, is often neglected in implementation of gainsharing plans, although implicitly embodied. The predominant forms of gainsharing plans are the Scanlon, Rucker, and Improshare Plans, though hybrid plans customized on the basis of one or more of these prototypes greatly outnumber the basic forms.

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The Scanlon Plan was developed by Joe Scanlon, a union leader in the steel industry in the 1930s, as a mechanism to turn around financially troubled plants. It typically uses a fairly simple bonus formula based on the ratio of labor costs to sales or production so that it is easily calculated, administered, and understood by employees. A shop-floor level committee encourages employees to make suggestions and, once received, reviews them and makes final decisions on whether or not to implement the suggestion. The plantwide committees with joint union-management representation act on suggestions exceeding certain cost limits, review business problems, formulate strategic plans for improving productivity, and administer the bonus plan (Bullock & Lawler, 1984; Doyle, 1982; Lawler, 1986; Milcovich & Newman, 1987; Shaw & Schneier, 1995).

The Rucker Plan was designed by Allen Rucker in the 1930s. The Rucker Plan involves a less developed participative philosophy and structure than the Scanlon Plan. Some plans may adopt both production and screening committees; other plans have just the screening committee (Bullock & Lawler, 1984; Hammer, 1988; Lawler, 1986; Milcovich & Newman, 1987). Metzger (1980, cited in Welbourne & Gomez-Mejia, 1995) noted that "the Rucker Plan pays a bonus when a value added gain is realized. Value added is defined as sales minus raw materials and services procured outside of the company" (p. 11).

Improshare (improved production through sharing), which was developed by an industrial engineer, Mitchell Fein, focuses on sharing physical productivity gains with employees. The bonus formula is based on savings in hours required to make a unit of product. Improshare differs from other types of gainsharing in that its bonuses are paid weekly, which makes a link between performance and rewards more immediate than under the Scanlon and Rucker Plans (Bullock & Lawler, 1984; Kaufman, 1992; Lawler, 1986; Milcovich & Newman, 1987). Improshare, while not opposed to employee participation, considers it to be an outcome of the aggregate bonus plan (Fein, 1991).

The custom-designed programs offer a greater chance for success because of (1) fit with the situation, (2) the opportunity for employees to be involved at the start-up, and (3) the enhanced understanding and commitment that design involvement brings (Bullock, 1983). Research by O'Dell & McAdams (1987) showed that more than 42.7% of all gainsharing plans and 58.9% of those in service organizations were customized in order to mesh with the organization's specific attributes.

Miller and Schuster (1987) reported that Productivity and Waste Bonus, Group/Plant, and DARCOM Plans also belong to gainsharing, primarily focused on economic incentives. Productivity and Waste Bonus plans are concerned with productivity and quality so that productivity gains do not result in deterioration of product quality. Similarly, Tomkins Associate Incorporated (1990) presented Goalshare, Family of Measures, and Multi-Cost Plans as types of gainsharing with a focus on physical performance rather than financial performance. In Goalshare, a bonus is determined based on the performance of target goals, such as labor productivity, scrap, and customer service. For example, if a customer service rating is between 95% and 96%, a 0.5% bonus of total payroll costs is given to employees. In Family of Measures, a bonus is given to employees after calculating total savings from labor productivity, scrap, returns, and warranty payments. Similarly, in a Multi-Cost Plan, total savings are calculated in terms of energy, scrap, maintenance, overtime, and returns/warranties, and then a bonus is determined.

Gainsharing plans are used to improve organizational processes and effectiveness and as a survival strategy to respond to external environmental changes. A number of firms have become dependent on internal and external consultants to assist in this transformation process. A number of consulting firms specialize in gainsharing. However, there has been little research on the roles of consultants in gainsharing firms, especially the effects of consultants on organizational processes and effectiveness.

Research Question

In this context, a major research question is: What are the roles played by internal and external consultants in gainsharing firms in order to improve organizational processes and effectiveness? While this question will be answered empirically in another paper, in this paper, a theoretical basis for answering this question, along with a proposed model, will be presented.

Theoretical Framework

In order to explain the roles played by a consultant in gainsharing firms, two models, gainsharing and action research, are utilized. Hammer's (1988) gainsharing model focuses on the role of bonuses and employee involvement in gainsharing plans, while an action research model (McLean & Sullivan, 1989, cited in Rothwell, Sullivan, & McLean, 1995) deals with the role of consultants in the various stages of Organization Development (OD) interventions.

Hammer (1988) developed a gainsharing model with a focus on the roles of employee participation and productivity. A major advantage of this model is that it incorporates a cyclical process from program acceptance to commitment to the program with an individual-based motivation model. The motivational model is based on expectancy theory constructs, such as efforts (employee efforts), performance (productivity improvements), and outcomes (bonus payments). According to the model, "participation-direct worker involvement in and influence over work process and productivity issues-leads to three outcomes" (Hammer, 1988, p. 346). Two factors lead to productivity improvements, and a third factor brings about information sharing and employee empowerment. The first factor is "the identification of obstacles to improved productivity, the solution to performance problems, and agreement on work-related actions and behavior to overcome the obstacles. The participation process results in a set of accepted, specific work performance goals"(Hammer, 1988, p. 346). The second outcome, intrinsic motivation, has a more ambiguous status in a gainsharing model. If we assume that "involvement in and influence over organizational decision making is intrinsically motivating, employees will be motivated to participate, but they will not necessarily be more motivated to do the work they are supposed to do at the point of production" (Hammer, 1988, p. 347). The third outcome is the empowerment of nonmanagerial employees through their access to managerial level information. Effective employee participation creates pressure on management to open communication and share information with labor. Improved planning and organization of work derive from participation in gainsharing plans. The productivity improvements lead to bonus payments, which, in turn, influence two factors affecting productivity improvements. Bonus payments directly enhance trust in management and commitment to the plan, which is also affected through information sharing and employee empowerment. One limitation of this model is that it does not go into details of the impacts of gainsharing on the company, except mentioning productivity improvements and trust in management.

An action research model (McLean & Sullivan, 1989, cited in Rothwell, Sullivan & McLean, 1995) illustrates the role of consultants in the various stages of OD interventions. According to them, an action research model consists of eight steps of (1) entry, (2) start-up, (3) assessment and feedback, (4) action planning, (5) intervention, (6) evaluation, (7) adoption, and (8) separation.

The entry stage is featured by searching and marketing. An external consultant scans the business environment to identify organizations or parts of the organization that are currently undergoing crisis and desire change. Or an internal consultant may be contacted for help by a manager with specific problems or opportunities. At the start-up stage, the consultant enters the organization and lays the groundwork for the change by identifying what change is desired, when it is desired, who desires or who opposes it, and what rationale explains the desired change. The consultant at the assessment and feedback stage collects data and helps organizational members identify its problems and opportunities by determining what domains of the organization are to be examined, using appropriate processes to collect data, analyzing and interpreting data, giving the client feedback about the data, and beginning to select an intervention strategy. During the

action planning stage, the consultant works with the client to brainstorm options so that special activities are articulated and structures for managing the change process are identified. The consultant at the intervention stage assesses readiness for change and helps develop strategies to overcome resistance to change. At the evaluation stage, the consultant assesses progress of the intervention as well as the overall outcome of the interventions. During the separation stage, the consultant provides feedback to the client on the change process by summarizing progress to date and the decision is made as to whether the client-consultant relationship is still working.

An integrated model (Figure 1), illustrating the role of consultants in gainsharing, has been developed using both the gainsharing model of Hammer (1988) and the action research model of McLean and Sullivan (1989, cited in Rothwell, Sullivan, & McLean, 1995). This model is designed to explain and analyze the roles and the extent of involvement of consultants in the five stages of gainsharing--preparation, design, implementation, evaluation, and separation.

During the preparation stage (Figure 2), consultants examine whether gainsharing is promising or not for a particular firm by engaging in analyses of the external environment and the internal organization. They then help the organization determine whether gainsharing is an acceptable strategy. This could be done through analysis of the organization's culture (Hammerstone, 1987) and an examination of favorable conditions for gainsharing (Lawler, 1981, 1986).

At the design stage (Figure 3), a design committee (Markham et al., 1992) or task force (Masternak & Ross, 1992) is set up to establish the goals for gainsharing, such as increasing productivity, worker attitude, communication, teamwork, and quality. Then, gainsharing plans are designed with a focus on goal, eligibility, bonus formula, definition of performance measures, distribution of gainsharing pool, payout percentage, payout level, and payout period (Lawler, 1981; McAdams & Hawk, 1994; Thomas & Olson, 1988). Employee involvement (Markham et al., 1992), teamwork (Hoerr, 1989; Shaw & Schneier, 1995), education/communication programs (D'Art, 1992; Hammerstone, 1987; Imberman, 1992; O'Dell & McAdams, 1983), and some strategies to overcome resistance to change (Cummings & Worley., 1993) are developed.

Through the entire process of implementation (Figure 4), more employee efforts and better ways of planning and organization of work are expected. A large number of suggestions are expected. Markham et al. (1992) found that more than 400 suggestions were submitted during the first year of the Scanlon Plan. As a result, productivity improvements or cost savings are expected, which eventually lead to bonus payments. In the case of Markham et al. (1992), the average net savings per suggestion was calculated to be $300. If the motivational model of efforts-performance-outcome linkage works well, gainsharing will be supported by all organizational members and eventually will be adopted by the organization as a long-term strategy. Markham et al. (1992) reported that the Scanlon Plan was approved by 83% of the employees initially for a one-year trial period, and then the plan was, to some extent, revised and reapproved by 85% of the employees. The roles of consultants at this stage are to help HR management measure the extent to which employee efforts lead to productivity improvements and to what extent productivity improvements lead to bonus payments, as well as to help teamwork, employee involvement, suggestion systems, and communication mechanisms work well at the operational levels.

At the evaluation stage (Figure 5), collaborative evaluation efforts between consultants and HR management are made to measure the progress of the gainsharing plan, as well as an overall outcome of the gainsharing. The typical time for evaluation is the end of a quarter or a year, although cash bonuses are usually paid out to employees monthly to make gainsharing effects powerful. Productivity improvements or other impacts on firms are measured in terms of qualitative and quantitative measures, and employees are thus compensated through a form of bonus payments. Qualitative measures could be improved employee involvement, employee commitment, communications, morale, customer satisfaction, and retention. Quantitative measures could be increased productivity, profits, cost savings, bonus payments, and product quality. The method of evaluation could be survey, financial analysis, or meetings such as focus groups.

At the separation stage (Figure 6), the consultant needs to ask three major questions: Why separate from involvement in the gainsharing plan? When is the best timing for separation?

How should separation occur? After the consultant has answered "why and when" questions, they face the "how" question. The role of consultants at this stage is to help gainsharing firms manage on their own, without recourse to external consultants. Kim (1996) found a negative relationship between the use of consultants and the survival of gainsharing. This clearly indicates the critical role of consultants at the separation stage to increase the possibility of the survival of gainsharing plans.

Contributions to Human Resource Development

The research to be conducted based on this model will identify the role of consultants in gainsharing plans at each stage of involvement. It will help consultants give appropriate advice and feedback to clients at different stages so that gainsharing plans are designed, implemented, and evaluated successfully. Human resource management and practitioners who may work as, or work closely with, an external or an internal consultant can contribute to organizational process and effectiveness at operational levels by identifying and utilizing a variety of means designed to accomplish these objectives. Gainsharing is often considered to be a part of strategic management by top management, who is ultimately interested in organizational performance, such as returns to stockholders or returns on investment, because gainsharing with consultant involvement is expected to lead to greater organizational effectiveness than when implemented without the use of consultants.

This model is important as it visually presents and describes the roles of consultants in gainsharing plans and opens the door for examining the impact of consultant involvement in gainsharing plans on the organization's processes and effectiveness so that it can contribute to HRD theory and research. Finally, policy makers are interested in obtaining a competitive edge in an intense global market through competitive quality products and services. Thus, gainsharing plans, which are designed to improve product quality, reduce costs, heighten profits, and eventually improve organizational effectiveness, are recommended by policy makers in order to achieve a competitive edge.

Results and Conclusion

Gainsharing plans are used to improve organizational processes and effectiveness, such as cooperation, communication, labor and management relations, quality, cost, productivity and profit, so that they may be used as a survival strategy to respond to external environmental changes. In this paper, a model has been developed to explain and analyze the roles of consultants in gainsharing plans by integrating Hammer's (1988) gainsharing model with an action research model (McLean & Sullivan, 1989, cited in Rothwell, Sullivan, & McLean, 1995). Along with the five stages of gainsharing (preparation, design, implementation, evaluation, and separation) are identified and explained the roles of consultants. This model may provide a theoretical framework to test some empirical questions such as "how does the extent of involvement of consultants in the preparation, design, implementation, evaluation, and separation stages of gainsharing affect organizational processes and effectiveness?"

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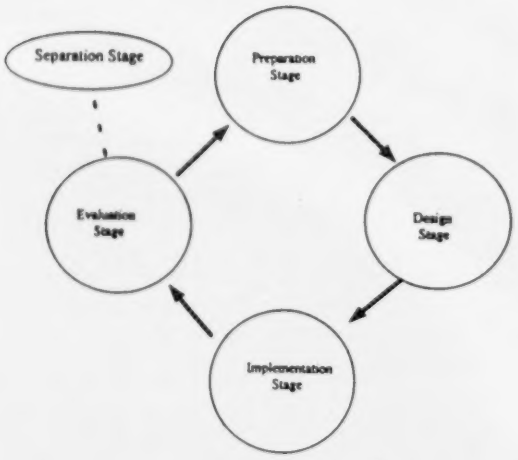

Figure 1
Roles of Consultants in Gainsharing Firms

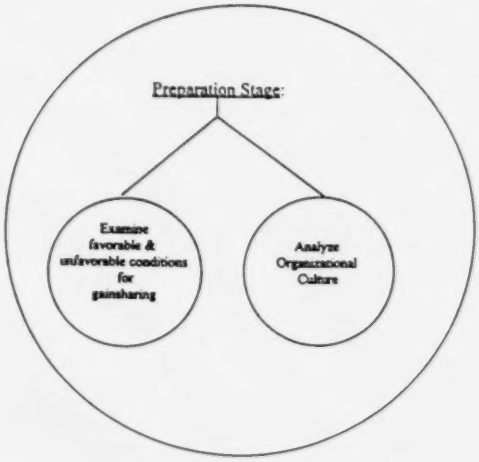

Figure 2
Roles of Consultants at Preparation Stage in Gainsharing Firms

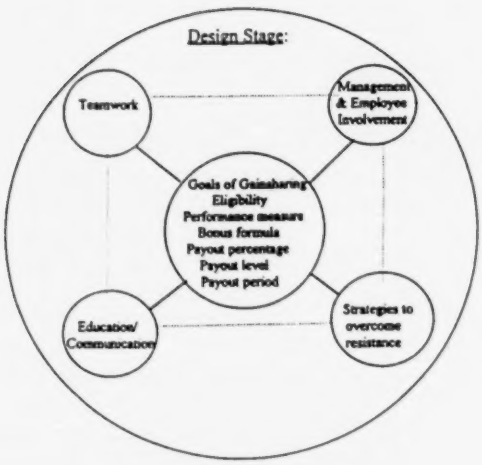

Figure 3
Roles of Consultants at Design Stage
in Gainsharing Firms

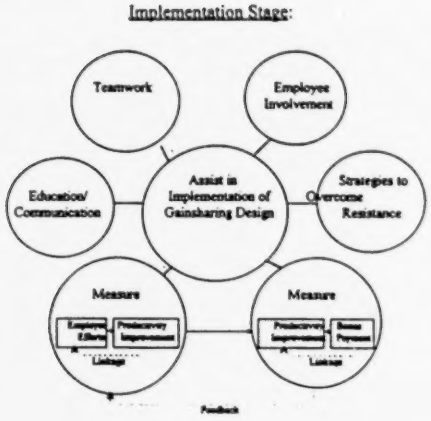

Figure 4
Roles of Consultants at Implementation Stage
in Gainsharing Firms

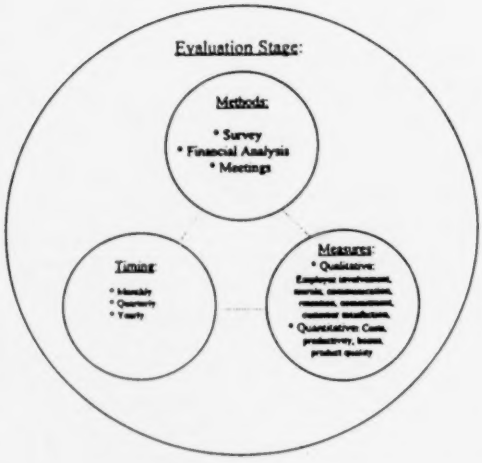

Figure 5
Roles of Consultants at Evaluation Stage

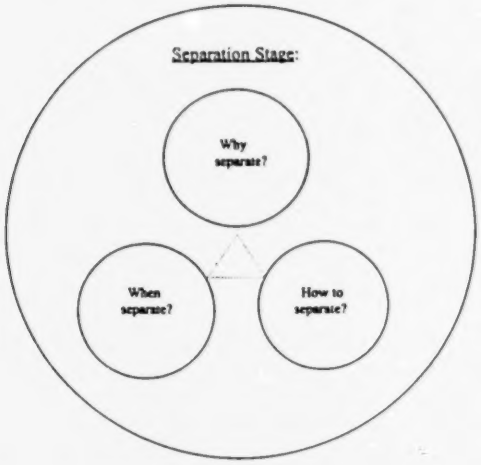

Figure 6
Roles of Consultants at Separation Stage
in Gainsharing Firms

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Rethinking Boundaryless Organizations: A Framework for the Implementation and Management of Virtual Teams in the Global High-Performance Organization

Lisa Horvath
George Washington University

Deborah Duarte
George Washington University

The paper presents a model for the implementation and development of virtual teams in a global organization. The dynamic, laterally oriented model was developed through studies of virtual teams in the telecommunications industry. The systems-level model developed encompasses the design of teams, the process of embedding teams in an organization, the development of team and management capabilities and the alignment of organizational context.

Organizations are increasingly facing performance demands and a changing business environment (Lawler, 1996). Consequently, organizations are constantly exploring and implementing new organizational designs that will enable them to change and learn faster and therefore increase the quality and efficiency of their performance. One organization design feature that has been consistently advocated for during the last ten years are teams (Mohrman, Cohen, & Mohrman, 1995).

In the most general sense teams are groups of individuals who work together to produce products or deliver services for which they are held accountable. In practice teams are much more diverse varying on multiple dimensions including mission, structural foundations and duration. A general model of team implementation does not capture the special requirements of different team forms and organizational contexts. The research presented here was particular interested in examining the increasingly popular global organizational context and the design and implementation of their related team structure - virtual teams.

Organizations have traditionally grown through generic expansion or acquisition (Penrose, 1959; Yip, 1982). Recently many Western firms have entered into inter-organizational relationships with international organizations (Contractor & Lorange, 1988) or have expanded globally. Global organizations operate twenty-four hours a day, seven days a week and have operations on at least two continents (Lawler, 1996). Performance demands necessitate that these organizations have their diversely located stakeholders participating on teams These teams are typically called virtual teams. They typically have dispersed stakeholders located in different places and times with little to no face-to-face communication and interactions. Virtual team members often complain of competing tasks, and functional accountabilities. Added to this is the complicated dimension of integrating a multi-cultural work team.

The work on the implementation and management of successful organizational teams advocate principles that are antithetical to the virtual team context including: providing opportunities for on-going face-to-face communication and opportunities for collective training, feedback and recognition (Mohrman, Cohen & Mohrman, 1995). The challenges of managing and implementing virtual teams has largely been unexplored and is the main focus of this research study. To put this research in context we will first review the components of the virtual organization and the existing research around the most enduring aspect of a virtual organization - electronically mediated communication.

Virtual Organizations

Organizations are no longer the visible, concrete distinct places they used to be. In today's society organization has become more of a verb than a noun. That is people are no longer in the same time or place doing business. Organizations are becoming virtual. We can often describe what they do but cannot place them on a map

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(Hesselbein, Goldsmith, & Beckhard, 1997).

There are two major aspects of the virtual organization. Both aspects have to do with the redefinition of boundaries around human/social aspects and physical aspects of the workplace. First the virtual organization is characterized by electronically mediated communication. This is communication where people are physically separated and not face-to-face. Communication is therefore mediated through technology (Kiesler, Siegel, & McGuire, 1984). It is also characterized by the workplace being a place not a concept. The workplace becomes a system of loosely coupled settings such as the airport, car home, satellite office, hotel and restaurant (Becker & Steele, 1995; Handy, 1995).

The building blocks of these virtual organizations are virtual teams. A virtual team is *more than two people who come together for a period of time to work toward a common goal or to produce a product. Team members may not be co-located and often, are separated by time, distance, and culture. Team members may not have worked together before and could come form diverse functional backgrounds and have different reporting relationships.*

Anecdotal evidence has shown that successful virtual team help to build organizational and team agility, develop flexible employees with multiple skill sets, ensure proper utilization of resources and manage projects that meet cost, schedule and technical requirements. Virtual teams use computer-mediated communication (CMC) technologies which include electronic mail, group decision support systems and computer conferences. Interest in this areas has continually grown from attention on technology as it relates to organizational efficiency and effectiveness to the social psychological aspects of computer-mediated communication (Rudy, 1995). A majority of the research in this area has concentrated on the communication technologies.

The limited literature on virtual teams has all recognized that proper technology is needed to ensure the successful implementation and management of these virtual teams. The research has yet to examine additional factors (i.e., organizational, individual or team) that ensure the successful implementation and management of these virtual teams. Considering that many organizations are transferring from a culture of co-located team members, to a virtual team assignment insight into this process is necessary. This research attempts to fill this gap by exploring the organizational factors that contribute to the successful implementation and management of virtual teams.

Research Questions

The research project dual goal was:

To examine what organizational factors inhibit and/or facilitate the move to a global virtual team design.

To examine the necessary competencies of team leaders and members for a successful organizational implementation of a global virtual team design.

The study was guided by the work on team-based organization (Mohrman, Cohen & Mohrman, 1995) and socio-technical theory (Pasmore, 1988). The model was grounded in the work of group effectiveness (Hackman, 1987) and employee involvement (Lawler, 1992). In this study organizations were viewed as information processing and learning entities (Galbraith, 1973; Galbraith, 1993; Dechant, Marsick & Kasl, 1993).

Methodology

Research Design. Qualitative research methods were selected to generate data rich in detail and embedded in context. Within the broad area of qualitative research a comparative case study approach was chosen using three cases. This design allowed for within and between case analysis. The three teams chosen for case studies were selected because they were the first and only virtual teams within this organization. As virtual teams these three teams had members that were separated by time, distance and country and were responsible for the completion of an information systems' project.

Our site was a North American telecommunications fortune 100 company. This company employees 82, 000 employees in 60 countries worldwide. Employees located in the headquarters represent 25 different nationalities. Seventy-five percent of the top management has worked in two or more countries. This company was actively working to create a fully networked responsive global organization. As previously stated, the three project teams used to launch their virtual global team strategy were each chosen as a case study for this research project.

Data collection and analysis. In-depth interviews and observations were the primary sources of data collection. First, in-depth interviews were conducted with 11 team members, 3 team leaders, 73 project managers[1] and 11 senior managers. Each case study included gathering information from each team member (project managers and senior managers), team leader (n=18-20 for each team) and managers that had significant interaction with the team (n=20-25 for each team). Significant interaction designated by the team leaders was constituted by bi-monthly interactions with any team members around the work or process of the team. Focused interviews , in that they were organized around several predetermined questions and topics but provided some flexibility in the sequencing of the questions and had no predetermined set of response categories or specific data to obtain. Our sample was chosen to include members of the project teams and outside constituents, thereby allowing us to see the implementation process from multiple perspectives. The interview covered the following topics as they relate to virtual global teams: management processes and structures that foster and/or hinder performance, organizational members' competencies and experiences needed for success, potential impact on clients, and perceptions of management expectations about virtual teams (i.e., What is your experience with virtual teams? and What are the knowledge, skills and experiences needed for success for a member of a virtual team?).

Additional data was collected through several days of observation of team meetings. These virtual teams rarely met face-to-face. Observations were conducted of these rare face-to-face meetings including the launch and three periodic staff meetings.

Prior to conducting the case studies a benchmarking study of best practices for virtual teams were conducted. We looked at managerial and organizational practices that allowed the teams to be successful. This information was used to examine the validity of the information and themes developed in the three case studies. Information was gathered from companies known for successful global virtual team programs including: Anderson consulting, Price Waterhouse, Lucent, Bell Atlantic, Johnson & Johnson and Whirlpool. Figure 1 presents organizational mechanisms that aid the implementation and management of virtual teams. Human resource professionals responsible for the implementation of the global teams were identified for each organization. These professionals were interviewed over the phone using an open-ended protocol. The interviewees were asked to identify best practices associated with their successful implementation of virtual teams. The interviews were recorded by pen and paper. Best practice themes were generated by using simple frequencies. The most frequently identified themes are presented in Figure 1.

Figure 1. Organizational Mechanisms for Implementing and Managing Virtual Teams

Organizational Mechanisms	Example
Sustaining and Disbanding Processes	*Standard team kick-off process*
Common Processes	*Define technical and business processes and practices so that everyone on team is clear about roles and responsibilities*
Standards for timing, development documentation, etc.	*Standard project documentation processes*
Support for team-leaders	*Training for team leaders on team processes*
Developing a culture that supports remote work	*Organizational Structure is project based*
Electronic collaboration tools	*Using electronic means for project status and collaboration; e.g. Lotus Notes*
Diverse team stakeholders	*Customers as part of the team*

Data from the observations and interviews were analyzed using Glaser and Strauss' (1967) constant comparative method. Themes were then generated for the three cases followed by an examination and analysis of

[1]A high number of project managers were interviewed because they are the primary developer and manager of these new team structures.

the themes found across the cases (Miles & Huberman, 1994). To review, the benchmark data was used as a backdrop on which to examine, critically analyze and modify our findings.

The interviews were taped and transcribed. Within case analysis were conducted in which the notes from the observations and interview transcripts were analyzed for descriptive and pattern codes using open coding to to generate broader conceptual frameworks and themes. The process went beyond the summary approach and expanded on the descriptive codes examining for analytic potential.

Themes examining the differences and similarities of the cases were generated. Each time a theme of difference or similarity was identified the information generated from the benchmarking study was used to critique these findings. The benchmarking data was used to question the veracity of the findings and explicate the differences.

Results

The results indicate that the successful implementation of virtual teams necessitates three major organizational actions:

•the development of skills and knowledge (i.e., interpersonal, communication and flexibility skills) for members, leaders and other organizational members associated with the virtual teams;

•the provision of tools that support collaborating, communicating, statusing and learning; and

•the development of an organizational culture and management attitude that support the move to virtual teams and globalization as a preferred way of doing business.

Each of these areas will be given an in-depth examination.

Skills and Knowledge. A large set of individual skills and knowledge were cited as necessary for the development and management of virtual teams. Five discrete roles were identified that are a part of and/or affect virtual teams. These five roles were:

•Project leader: responsible for the output of the virtual project.

•Team member: constituent of the teams responsible for assisting with the main task.

•Resource manager: responsible for assignment of personnel to virtual teams.

•Client manager: navigates the process between the client and the team.

•Senior project manager: manages the work of several virtual teams.

For each of these roles different competencies were cited as a development imperative. Categorically the issues of interpersonal skills, flexibility and ability to deal with ambiguity were seen as extremely important areas for development. Figure 2 reports that skills and knowledge associated with each role on a virtual team.

Figure 2. Skills and Knowledge for Virtual Teams

Project Manager	Team Member	Resource Manager	Client Manager	Senior Project Manager
•Building trust within teams •Tolerance for ambiguity and problem solving •Communication planning and execution •Ability to use different media to share information, problem solve, etc. •Meeting management skills •Interpersonal skills to keep individuals connected •Listening, esp. On phone •Transitioning and orienting team members throughout the project •Understanding individual differences •Developing strategies to ensure participation	•Team dynamics and performance, esp. as influenced by individual differences •Good oral and written communication skills •Project management including planning their part of the project, project status and documentation •Ability to resolve issues such as competing priorities •Flexibility to deal with ambiguity •Initiative	•Listening •Sensitivity to cultural and personal backgrounds •Advocacy skills for assignments •Interpersonal concern •Personnel management •Smoothing the transition back into the resource pool after a long assignment •Managing competing needs of members	•Identifying the skill requirements of virtual teams •Systems requirement identification and verification	•Encouraging the reporting of team problems with project managers •Maintaining the integrity of the resource allocation process •Facilitating learning and knowledge sharing between the individuals below them and project teams

Tools. Four major areas of tools that have a special meaning for virtual teams as opposed to tools that could be equally pertinent to co-located teams (e.g., a cost tracking system) were cited as necessary for virtual team success: collaborating, communicating, statusing and learning.

Collaboration. Tools that assist with collaboration and joint effort such as groupware (i.e., lotus notes) were seen as imperative for the continued management and facilitation of virtual teams.

Communication. Tools that assist with electronic communication were seen as necessary on a daily basis. This included e-mail and telephone and teleconferencing. The telephone was seen as the most reliable communication tool. E-mail is often ignored because of consistent use for low importance items. Teleconferencing usefulness was also limited by bandwidth.

Statusing. Tools that assist with communicating the status of projects to all team members and stakeholders are seen as essential in a virtual environment. In co-located teams in traditional environments members can easily ascertain the status of their project from informal observations of the activities of other teams members and hard copy documentation.

Learning. Virtual teams are consistently dealing with ambiguity and the increasing demands of the workplace. To continue development systems are needed that promote learning. Such systems might include a knowledge capturing system or some other means to capture, organize and retrieve lessons learned.

Management Environment. The environment for virtual teams was addressed in terms of management attitudes, practices and policies as well as organizational culture characteristics. Some of these were seen as facilitators and others as barriers. The cultures that sees virtual teams as a preferred way of doing business and supports their philosophy with continuous improvement programs were the environments that were most conducive

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to virtual team development. Figure three contains a listing of environmental facilitators and barriers to the development of virtual teams.

Figure 3. Environmental Facilitators and Barriers to Virtual Teams

	Organizational culture	**Management attitudes**
Facilitators	•Changing business environment necessitates move to virtual teams. •Individual committed to client satisfaction •Individuals value learning and growth •Willingness to work to put in place processes that promote performance •Action and problem solving orientation •High standards for performance	•Openness to multiple communication media and questions variety of issues •Supporting the move to virtual teams and globalization as a preferred way of doing business •Openness to spending time and money on development activities such as training, mentoring, and job aids.
Barriers	•Lack of visible control for project management •Relationship oriented culture based on face to face and almost daily contact with the individuals around them •Focus on sites local •Not discussing diversity •Not valuing documenting and sharing information	•Need to see someone to think they are really working •Alignment of goals at different organizational levels •Lack of willingness or ability to discuss diversity •Not being clear about team outcomes •Lack of strong sponsorship role for some teams •Inability to give up control for decision making and for items(i.e., budget for travel)

In the next section we will examine implications for virtual organizations and their teams.

Implementation and Development Model

This section describes a model for virtual team implementation, development and management on the individual, team and organizational level. The model is made up of intervention recommendations.

Individuals. Intervention recommendations are included for several types of individuals related to a virtual team: team members, project managers, senior project managers and resource managers. Recommendations are of three types: checklists, guides and forms, training; and mentoring.

Checklist, Guides and Forms. Team leaders and members need to have aides available to quickly get their teams to high performance. These aids would reinforce formal training initiatives making learning more concrete. These checklists forms and guides can assist with project definition and start-up (i.e., project chartering, definition of tasks and deliverables, team member role and accountability, scheduling, building trust) and leading the team (i.e., statusing, making corrective technical changes, motivation, communicating and collaborating) and team dynamics (i.e., level of team member participation, learning, maintaining trust).

Training. The continuous updating of employee skills and knowledge is needed to maintain a resilient workforce. Moving to a virtual team environment is producing changes that should reverberate throughout a skills development and training program. Training in skills and knowledges identified in Figure 2 are critical to successful virtual team functioning.

Mentoring. A mentoring system is recommended for team members and project managers especially junior colleagues. Virtual teams increase the need for mentors because they make learning from colleagues more difficult to obtain. Much research has shown that having mentors results in higher rate of job satisfaction, mobility, opportunity, promotion and compensation for those mentors.

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Teams. For the development of virtual teams we recommend two interventions on the team level: the addition of communication, collaboration, statusing and learning tools and the implementation of group facilitators.

Tools. Several types of tools could help the performance of virtual teams. Recommendations for four different types are described in the following section.

- •Communication. Internet collaborative tools to conduct electronic meetings (i.e., Microsoft Netmeeting, Internet Conference Professional Collaborator System 1000, CoolTalk).
- •Collaborating. Groupware to perform technical work together (i.e., Lotus Notes, Netscape's SuiteSpot and Novel's GroupWise 5).
- •Statusing. Tools to bi-directionally communicate the status of projects (i.e., project planning tools).
- •Learning. Tools that assist with the learning within and between virtual teams (i.e. general bulletin boards).

Facilitators. Facilitators may be very useful to virtual teams. There are many situations which the complexity of the project warrants a facilitator. As new research on teams has confirmed, performance and communication seem to change and be influenced mostly during the early stages of a teams' history. Hence, the use of facilitators is recommended to be used early on in a project's life cycle.

Organization. A integrated program to ensure virtual team effectiveness is recommended that demonstrates that management is committed to doing what is necessary to make virtual teams effect. This could include:

- • An ongoing communication effort to inform organizational members about the definition of and challenges associated with the virtual team environment and organizational actions such as the development of new processes. In addition this could include awareness sessions of the special requirements and practices of virtual teams and the process for resolving conflicts and issues among team members.
- •Alignment of goals of each management level. Problems areas such as clarity of decision making authority at different levels, sharing information between levels, clear and consistent direction to project teams, project team outcomes and other areas should be examined one at a time and aligned for each level of management in each directorate and across each project. Developing alignment and shared understanding could become part of a project kick-off and chartering activity for every project or part of regular strategic planning sessions for issues applicable across management levels.
- • Implementing a tracking system to examine the level of trust and satisfaction in the organization. This could include tailoring employee satisfaction questionnaires.
- • Developing standard organizational processes that would assist team members and leaders with all phases of team activities. Standards would facilitate the learning process and generally hasten familiarity with this unpracticed type of teaming.

Conclusion

The field-tested design framework presented in this research aids in the understanding and development of structures and systems to support the strategic deployment of virtual teams. This model's aim is to enhance current skills and abilities and put in place systems that facilitate the ongoing creation and sharing of new knowledge and best practices.We advocate redirecting human resource development practices that will assist collectives and individuals in understanding these new organizational creations.

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